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**FERNALD CITIZENS TASK FORCE AGENDA AND HANDOUTS FOR
MARCH 11, 1995 MEETING**

03/11/95

APPLEGATE TASK FORCE
75
AGENDA

FERNALD CITIZENS TASK FORCE

A U.S. DEPARTMENT OF ENERGY SITE-SPECIFIC ADVISORY BOARD

Chair:

John S. Applegate

Members:

James Bierer
Marvin Clawson
Lisa Crawford
Pam Dunn
Dr. Constance Fox
Guy Guckenberger
Darryl Huff
Jerry Monahan
Tom B. Rentschler
Robert Tabor
Warren E. Strunk
Thomas Wagner
Dr. Gene Willeke

Alternates:

Russ Beckner
Jackie Embry

Ex Officio:

J. Phillip Hamric
Graham Mitchell
Jim Saric

REVISED AGENDA

March 11, 1995

1. *Time and Place*

The next regularly scheduled meeting of the Task Force will be on Saturday, March 11, 1995, from 8:30 a.m. to 12:30 p.m., at the Joint Information Center, 6025 Dixie Highway, Fairfield, Ohio. We will begin the meeting promptly at 8:30.

2. *Subjects*

8:00	Continental Breakfast (optional)
8:30	Call to Order
	Approval of Minutes
	Chair's Remarks
8:45	Waste Disposition Decision (Discussion, Public Input, and Vote)
9:45	Budget Discussion (15 minutes presentation, 15 minutes questions)
10:15	Break
10:30	Discuss Cleanup Schedule Scenarios
11:00	Develop Criteria for Priorities
	Identify Path Forward on Making Priority Recommendations
11:45	Opportunity for Public Comment
12:00	Grazing Issue Discussion
12:15	Wrap Up
12:30	Adjourn

3. *Documents*

The documents and other materials relevant to the meeting's subjects are being developed by the Task Force staff. They will be distributed at the meeting.

4. *Chair's Announcements*

5. *Other Meetings of Interest (calendars enclosed)*

March 1995

PUBLIC PARTICIPATION CALENDAR

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
5	6 7:30pm Morgan Township - Civic Center	7	8	9 7:00pm Ross Township - Ross Fire House	10	11 8:30am Fernald Citizens Task Force Meeting
12	13 7:30pm Crosby Township - Civic Center	14 7:00pm Community Meeting - Plantation	15	16 7:00pm Ross Township - Ross Fire House	17	18
19	20 7:30pm Morgan Township - Civic Center	21	22	23 7:30pm FRESH - Venice Presbyterian Church	24	25
26	27 Ohio Federal Facilities Forum-Wright Pat. AFB 7:30pm Crosby Township - Civic Center	28 7:00pm OUS Proposed Plan Workshop-Crosby School-7 to 9	29	30	31	

Please call Judy Armstrong at 738-0003 for changes.

3/1/1995

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April 1995

PUBLIC PARTICIPATION CALENDAR

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
2	3 7:30pm Morgan Township - Civic Center	4	5	6 7:00pm Ross Township - Ross Fire House	7	8 8:30am Fernald Citizens Task Force Meeting
9	10 7:30pm Crosby Township - Civic Center	11	12	13	14	15
16	17 7:30pm Morgan Township - Civic Center	18	19	20 7:00pm Ross Township - Ross Fire House	21	22
23	24 7:30pm Crosby Township - Civic Center	25	26	27 7:30pm FRESH - Venice Presbyterian Church	28	29
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RESOLUTION TO RECOMMEND AN ON-SITE DISPOSAL FACILITY AT FERNALD

(Draft 3/8/95)

The Fernald Citizens Task Force recommends the construction of an on-site disposal facility to accept, from the Fernald site only, materials solely with low levels of contamination meeting the site-specific waste acceptance criteria.

The Fernald Citizens Task Force does not make this recommendation lightly. It is the result of one and one-half years of study, discussion, and evaluation. Disposition of contaminated material is one of four key recommendations required of the Task Force by our August 1993 charter. In the December 1993 work plan, we scheduled this decision for 1995. This schedule was then further refined in a revised work plan approved in December 1994. The draft final recommendation was prepared as scheduled in February 1995, with discussion and a public workshop on the full range of issues having been conducted as scheduled in January 1995. It is important to the Task Force that all our recommendations be based on a thorough evaluation of the technical information available, and through discussion and feedback with our neighbors surrounding Fernald. To this end, all of our meetings are open to the public and widely publicized, and all agendas are mailed to an extensive list of local residents and government officials. Comments are received at Task Force meetings, other public meetings attended by Task Force members, by mail, and through the Task Force message line.

All members of the Task Force live and work in communities that are impacted by the decisions being made at Fernald, and eight of 14 live and work in the direct vicinity of the site. No member of the Task Force wishes to see waste contaminated materials from Fernald or any other location stored on the Fernald property indefinitely. As it adjoins residential and agricultural lands and is situated directly above a sole source aquifer, Fernald is far from an ideal location for waste disposal of contaminated materials. Nevertheless, we are aware of the many engineering, political, and financial challenges facing a project the size of the Fernald cleanup. Our primary goals are protecting human health and the Great Miami Aquifer. We believe that a balanced approach to cleanup, in which the most hazardous materials are disposed off the Fernald property and the least hazardous materials are stored safely on the property, is the most effective way to achieve prompt and enduring protection for the communities surrounding Fernald. We ultimately arrived at this recommendation in consideration of the following issues:

- The more quickly source materials are taken out of the environment, the better the aquifer is protected and the more quickly it can be restored. The Fernald Citizens Task Force believes that an on-site **cell disposal facility** is the quickest way to protect the aquifer and the overall environment.
- The hazard of the material to be placed in the on-site disposal facility is very low. The maximum level of contamination that will be allowed in the disposal facility would allow for a land use as a developed park under cleanup levels recommended by the Task Force. The material is to be contained in a disposal facility solely for the purpose of protecting the aquifer over the long-term, and failure of the disposal facility would not present any immediate or significant threat to human health.
- In the off-site option, the risk of transporting the expected 2.4 million cubic yards of low-level contaminated soil and debris from the Fernald site to Utah and/or Nevada includes an estimated six fatalities to the public along the transportation routes, while relatively little health and safety risk is incurred by the public under the on-site option. Both on and off-site options require similar levels of work in excavating, loading, unloading, and disposing of materials; therefore, the risk to remediation workers in both options is roughly equivalent. The Fernald Citizens Task Force believes the on-site option is the most responsible with regard to overall safety.
- The cost of off-site disposal is three times that of on-site disposal. The Fernald Citizens Task Force believes that under current and foreseeable budget conditions, an off-site decision would greatly delay cleanup and may prevent any progress at all. An on-site **cell disposal facility** is thus more viable under the current budget and political constraints.
- Both states of Utah and Nevada have written to Fernald encouraging a balanced approach to cleanup. The Fernald Citizens Task Force is concerned that if the decision were made to send all Fernald waste and contaminated materials off site, we would face the likelihood of reprisals from other states resulting in our not being able to send any waste off site. The Fernald Citizens Task Force believes that it is of paramount importance that the off-site shipment of the most hazardous materials be the first priority of cleanup, and carried out expeditiously.
- Because the entire Fernald property is situated over a sole-source aquifer, only the lowest level materials, as defined by the site specific waste acceptance criteria, will be allowed into an on-site disposal facility. The waste acceptance criteria for Fernald were established by modeling the proposed **cell disposal facility** over a thousand year period to prevent any contamination from reaching the aquifer at levels that would exceed the federal maximum levels of contamination for drinking water. This modeling assumed only natural materials in providing

protection of the aquifer and excluded consideration of man-made liners that are subject to failure over the 1,000 year period.

- The Fernald Citizens Task Force wants to prevent any waste or contaminated materials coming to Fernald from other sites. Under the Federal Facilities Compliance Act of 1992, that potential exists. By managing the Fernald waste materials fairly and effectively, the Fernald Citizens Task Force believes we will be in a more equitable position to prevent a decision to send outside wastes to Fernald.

The above conditions have convinced us that an on-site disposal facility is the most prudent and effective solution to Fernald's waste problems. However, we ~~recommend~~ on-site storage of low-level materials at Fernald is acceptable only under the following conditions ~~only in conjunction with the following:~~

- The Fernald Citizens Task Force strongly and unanimously opposes the use of the Fernald site for the permanent disposal or long-term storage of any waste or contaminated materials originating from other locations.
- ~~The Fernald Citizens Task Force desires assurances from~~ The U.S. Department of Energy assures that any on-site cell disposal facility will be built for long-term performance using the best design, technology, and engineering available.
- ~~The Fernald Citizens Task Force desires assurances from~~ The U.S. Department of Energy assures that any on-site cell disposal facility placed at Fernald will be designed to make the least possible negative aesthetic impact. The Fernald Citizens Task Force and the public at large shall be explicitly involved in the process ~~to identify for determining~~ the ultimate appearance of the waste disposal facility.
- ~~The Fernald Citizens Task Force desires assurances from~~ The U.S. Department of Energy assures that any on-site cell disposal facility placed at Fernald will provide an adequate buffer area to minimize negative any impacts to neighboring properties and the future use of the Fernald property. The Fernald Citizens Task Force and the public at large shall be explicitly involved in the planning and design process ~~to identify these buffer areas and their maintenance for the~~ disposal facility.
- ~~The Fernald Citizens Task Force desires assurances from~~ The U.S. Department of Energy assures that the U.S. federal government that DOE will retain permanent ownership of any property containing the waste disposal facility.
- ~~The Fernald Citizens Task Force desires assurances from~~ The U.S. Department of Energy assures that the U.S. federal government that DOE will continually monitor the waste disposal facility and report these findings in a timely manner to residents and interested parties.

- ~~The Fernald Citizens Task Force desires assurances from~~ The U.S. Department of Energy **assures that the U.S. federal government that DOE will commit to retrieve and destroy or redispense of the material contained in the waste disposal facility at such time that if a new, proven, and economically justified technology to manage these materials should become available.**
- ~~The Fernald Citizens Task Force desires assurances from the U.S. Department of Energy that the risk at failure of any disposal facility left on-site shall not cause immediate or acute risks to public health and that DOE~~ **The U.S. federal government shall have in place adequate procedures to identify and correct any and all failures in performance of the disposal facility complications before any increased risk to public health occurs.**

The above resolution and supporting arguments were approved by the Fernald Citizens Task Force on March 11, 1995 by a vote of ___ supporting and ___ opposing. While the dissenting voters to this motion do not dispute the accuracy of the above statements, they do not find all of the arguments compelling enough to accept long-term storage of **contaminated materials waste** at Fernald. The dissenting votes believe the arguments for on-site storage are outweighed by the following:

- The contamination problems at Fernald did not evolve from local concerns or result in sufficient local benefit to warrant the long-term impact on local communities from a **waste disposal facility.**
- Facilities in the western U.S. are geologically better suited for **the long-term management of this waste material** than is Fernald.
- Local communities do not wish to incur the stigma associated with a **waste disposal facility.**
- **Waste A disposal facility** on the Fernald property limits the land available for productive reuse by local communities.



RESOLUTION TO RECOMMEND AN ON-SITE DISPOSAL FACILITY AT FERNALD

(Draft 3/8/95)

The Fernald Citizens Task Force recommends the construction of an on-site disposal facility to accept, from the Fernald site only, materials solely with low levels of contamination meeting the site-specific waste acceptance criteria.

The Fernald Citizens Task Force does not make this recommendation lightly. It is the result of one and one-half years of study, discussion, and evaluation. Disposition of contaminated material is one of four key recommendations required of the Task Force by our August 1993 charter. In the December 1993 work plan, we scheduled this decision for 1995. This schedule was then further refined in a revised work plan approved in December 1994. The draft final recommendation was prepared as scheduled in February 1995, with discussion and a public workshop on the full range of issues having been conducted as scheduled in January 1995. It is important to the Task Force that all our recommendations be based on a thorough evaluation of the technical information available, and through discussion and feedback with our neighbors surrounding Fernald. To this end, all of our meetings are open to the public and widely publicized, and all agendas are mailed to an extensive list of local residents and government officials. Comments are received at Task Force meetings, other public meetings attended by Task Force members, by mail, and through the Task Force message line.

All members of the Task Force live and work in communities that are impacted by the decisions being made at Fernald, and eight of 14 live and work in the direct vicinity of the site. No member of the Task Force wishes to see contaminated materials from Fernald or any other location stored on the Fernald property indefinitely. As it adjoins residential and agricultural lands and is situated directly above a sole source aquifer, Fernald is far from an ideal location for disposal of contaminated materials. Nevertheless, we are aware of the many engineering, political, and financial challenges facing a project the size of the Fernald cleanup. Our primary goals are protecting human health and the Great Miami Aquifer. We believe that a balanced approach to cleanup, in which the most hazardous materials are disposed off the Fernald property and the least hazardous materials are stored safely on the property, is the most effective way to achieve prompt and enduring protection for the communities surrounding Fernald. We ultimately arrived at this recommendation in consideration of the following issues:

- The more quickly source materials are taken out of the environment, the better the aquifer is protected and the more quickly it can be restored. The Fernald Citizens Task Force believes that an on-site disposal facility is the quickest way to protect the aquifer and the overall environment.
- The hazard of the material to be placed in the on-site disposal facility is very low. The maximum level of contamination that will be allowed in the disposal facility would allow for a land use as a developed park under cleanup levels recommended by the Task Force. The material is to be contained in a disposal facility solely for the purpose of protecting the aquifer over the long-term, and failure of the disposal facility would not present any immediate or significant threat to human health.
- In the off-site option, the risk of transporting the expected 2.4 million cubic yards of low-level contaminated soil and debris from the Fernald site to Utah and/or Nevada includes an estimated six fatalities to the public along the transportation routes, while relatively little health and safety risk is incurred by the public under the on-site option. Both on and off-site options require similar levels of work in excavating, loading, unloading, and disposing of materials; therefore, the risk to remediation workers in both options is roughly equivalent. The Fernald Citizens Task Force believes the on-site option is the most responsible with regard to overall safety.
- The cost of off-site disposal is three times that of on-site disposal. The Fernald Citizens Task Force believes that under current and foreseeable budget conditions, an off-site decision would greatly delay cleanup and may prevent any progress at all. An on-site disposal facility is thus more viable under the current budget and political constraints.
- Both states of Utah and Nevada have written to Fernald encouraging a balanced approach to cleanup. The Fernald Citizens Task Force is concerned that if the decision were made to send all Fernald waste and contaminated materials off site, we would face the likelihood of reprisals from other states resulting in our not being able to send any waste off site. The Fernald Citizens Task Force believes that it is of paramount importance that the off-site shipment of the most hazardous materials be the first priority of cleanup, and carried out expeditiously.
- Because the entire Fernald property is situated over a sole-source aquifer, only the lowest level materials, as defined by the site specific waste acceptance criteria, will be allowed into an on-site disposal facility. The waste acceptance criteria for Fernald were established by modeling the proposed disposal facility over a thousand year period to prevent any contamination from reaching the aquifer at levels that would exceed the federal maximum levels of contamination for drinking water. This modeling assumed only natural materials in providing

protection of the aquifer and excluded consideration of man-made liners that are subject to failure over the 1,000 year period.

- The Fernald Citizens Task Force wants to prevent any waste or contaminated materials coming to Fernald from other sites. Under the Federal Facilities Compliance Act of 1992, that potential exists. By managing the Fernald materials fairly and effectively, the Fernald Citizens Task Force believes we will be in a more equitable position to prevent a decision to send outside wastes to Fernald.

The above conditions have convinced us that an on-site disposal facility is the most prudent and effective solution to Fernald's waste problems. However, on-site storage of low-level materials at Fernald is acceptable only under the following conditions:

- The Fernald Citizens Task Force strongly and unanimously opposes the use of the Fernald site for the permanent disposal or long-term storage of any waste or contaminated materials originating from other locations.
- The U.S. Department of Energy assures that any on-site disposal facility will be built for long-term performance using the best design, technology, and engineering available.
- The U.S. Department of Energy assures that any on-site disposal facility at Fernald will be designed to make the least possible negative aesthetic impact. The Fernald Citizens Task Force and the public at large shall be explicitly involved in the process for determining the ultimate appearance of the disposal facility.
- The U.S. Department of Energy assures that any on-site disposal facility at Fernald will provide an adequate buffer area to minimize negative impacts to neighboring properties and the future use of the Fernald property. The Fernald Citizens Task Force and the public at large shall be explicitly involved in the planning and design process for the disposal facility.
- The U.S. Department of Energy assures that the U.S. federal government will retain permanent ownership of any property containing the disposal facility.
- The U.S. Department of Energy assures that the U.S. federal government will continually monitor the disposal facility and report these findings in a timely manner to residents and interested parties.
- The U.S. Department of Energy assures that the U.S. federal government will commit to retrieve and destroy or redispense of the material contained in the disposal facility if a new, proven, and economically justified technology to manage these materials should become available.

- The U.S. federal government shall have in place adequate procedures to identify and correct any and all failures in performance of the disposal facility before any increased risk to public health occurs.

The above resolution and supporting arguments were approved by the Fernald Citizens Task Force on March 11, 1995 by a vote of ___ supporting and ___ opposing. While the dissenting voters to this motion do not dispute the accuracy of the above statements, they do not find all of the arguments compelling enough to accept long-term storage of contaminated materials at Fernald. The dissenting votes believe the arguments for on-site storage are outweighed by the following:

- The contamination problems at Fernald did not evolve from local concerns or result in sufficient local benefit to warrant the long-term impact on local communities from a disposal facility.
- Facilities in the western U.S. are geologically better suited for the long-term management of this material than is Fernald.
- Local communities do not wish to incur the stigma associated with a disposal facility.
- A disposal facility on the Fernald property limits the land available for productive reuse by local communities.



RECOMMENDATION FOR AN ON-SITE DISPOSAL FACILITY AT FERNALD

The Fernald Citizens Task Force recommends the construction of an on-site disposal facility to accept, from the Fernald site only, materials solely with low levels of contamination meeting the site-specific waste acceptance criteria.

The Fernald Citizens Task Force does not make this recommendation lightly. It is the result of one and one-half years of study, discussion, and evaluation. Disposition of contaminated material is one of four key recommendations required of the Task Force by our August 1993 charter. In the December 1993 work plan, we scheduled this decision for 1995. This schedule was then further refined in a revised work plan approved in December 1994. The draft final recommendation was prepared as scheduled in February 1995, with discussion and a public workshop on the full range of issues having been conducted as scheduled in January 1995. It is important to the Task Force that all our recommendations be based on a thorough evaluation of the technical information available, and through discussion and feedback with our neighbors surrounding Fernald. To this end, all of our meetings are open to the public and widely publicized, and all agendas are mailed to an extensive list of local residents and government officials. Comments are received at Task Force meetings, other public meetings attended by Task Force members, by mail, and through the Task Force message line.

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- The more quickly source materials are taken out of the environment, the better the aquifer is protected and the more quickly it can be restored. The Fernald Citizens Task Force believes that an on-site disposal facility is the quickest way to protect the aquifer and the overall environment.
- The hazard of the material to be placed in the on-site disposal facility is very low. The maximum level of contamination that will be allowed in the disposal facility would allow for a land use as a developed park under cleanup levels recommended by the Task Force. The material is to be contained in a disposal facility solely for the purpose of protecting the aquifer over the long-term, and failure of the disposal facility would not present any immediate or significant threat to human health.
- In the off-site option, the risk of transporting the expected 2.4 million cubic yards of low-level contaminated soil and debris from the Fernald site to Utah and/or Nevada includes an estimated six fatalities to the public along the transportation routes, while relatively little health and safety risk is incurred by the public under the on-site option. Both on and off-site options require similar levels of work in excavating, loading, unloading, and disposing of materials; therefore, the risk to remediation workers in both options is roughly equivalent. The Fernald Citizens Task Force believes the on-site option is the most responsible with regard to overall safety.
- The cost of off-site disposal is three times that of on-site disposal. The Fernald Citizens Task Force believes that under current and foreseeable budget conditions, an off-site decision would greatly delay cleanup and may prevent any progress at all. An on-site disposal facility is thus more viable under the current budget and political constraints.
- Both states of Utah and Nevada have written to Fernald encouraging a balanced approach to cleanup. The Fernald Citizens Task Force is concerned that if the decision were made to send all Fernald waste and contaminated materials off site, we would face the likelihood of reprisals from other states resulting in our not being able to send any waste off site. The Fernald Citizens Task Force believes that it is of paramount importance that the off-site shipment of the most hazardous materials be the first priority of cleanup, and carried out expeditiously.
- Because the entire Fernald property is situated over a sole-source aquifer, only the lowest level materials, as defined by the site specific waste acceptance criteria, will be allowed into an on-site disposal facility. The waste acceptance criteria for Fernald were established by modeling the proposed disposal facility over a thousand year period to prevent any contamination from reaching the aquifer at levels that would exceed the federal maximum levels of contamination for drinking water. This modeling assumed only natural materials in providing

protection of the aquifer and excluded consideration of man-made liners that are subject to failure over the 1,000 year period.

- The Fernald Citizens Task Force wants to prevent any waste or contaminated materials coming to Fernald from other sites for permanent disposal or long-term storage. Under the Federal Facilities Compliance Act of 1992, that potential exists. By managing the Fernald materials fairly and effectively, the Fernald Citizens Task Force believes we will be in a more equitable position to prevent a decision to send outside wastes to Fernald.

The above considerations have convinced us that an on-site disposal facility is the most prudent and effective solution to Fernald's waste problems. The Fernald Citizens Task Force recommends the construction of an on-site disposal facility to accept, from the Fernald site only, materials solely with low levels of contamination meeting the site-specific waste acceptance criteria. However, on-site storage of low-level materials at Fernald is acceptable only in the context of the above considerations and under the following conditions, such considerations and conditions being inseparable from the recommendation:

- The Fernald Citizens Task Force strongly and unanimously opposes the use of the Fernald site for the permanent disposal or long-term storage of any waste or contaminated materials originating from other locations.
- Any on-site disposal facility will be built for long-term performance using the best design, technology, and engineering available.
- Any on-site disposal facility at Fernald will be designed to make the least possible negative aesthetic impact. The Fernald Citizens Task Force and the public at large shall be explicitly involved in the process for determining the ultimate appearance of the disposal facility.
- Any on-site disposal facility at Fernald will provide an adequate buffer area to minimize negative impacts to neighboring properties and the future use of the Fernald property. The Fernald Citizens Task Force and the public at large shall be explicitly involved in the planning and design process for the disposal facility.
- The U.S. federal government will retain permanent ownership of any property containing the disposal facility.
- The U.S. federal government will continually monitor the disposal facility and report these findings in a timely manner to residents and interested parties.
- The U.S. federal government will commit to retrieve and treat or redispense of the material contained in the disposal facility if a new, proven, and economically justified technology to manage these materials should become available.

- The U.S. federal government shall have in place adequate procedures to identify and correct any and all failures in performance of the disposal facility before any increased risk to public health occurs.
- The U.S. Department of Energy commits to the above conditions.

U.S. Department of Energy budget adjustments in the short or long term will not adversely impact the substance of our recommendation.

The above recommendation was approved by the Fernald Citizens Task Force on February 18, 1995 by a vote of nine supporting, one opposing, and one abstaining. The supporting considerations and conditions were approved unanimously on March 11, 1995. The dissenting voter believes the arguments to recommend on-site storage of materials containing low level contamination are outweighed by the following:

- The contamination problems at Fernald did not evolve from local concerns or result in sufficient local benefit to warrant the long-term impact on local communities from a disposal facility.
- Facilities in the western U.S. are geologically better suited for the long-term management of this material than is Fernald.
- Local communities do not wish to incur the stigma associated with a disposal facility.
- A disposal facility on the Fernald property limits the land available for productive reuse by local communities.

Rush To Judgement

From: Darryl O. Huff

To: Fernald Citizens Task Force

March 11, 1995

Upon receiving Mr. Gene Willeke's memorandum on his Rationale for an On-Site Disposal Cell near my home, I felt compelled to respond! Please remember my response reflects the viewpoint of one lifetime resident of over forty years and having lived within two miles of the site. My grandparents and parents lived there years before the plant was ever built. Therefore we had no choice in having to live next to a nuclear facility or not.

I do not consider myself an irrational person, but after reading Mr. Willeke's memorandum it seems I fit his analogy of being one. Even though I firmly disagree with most of his analysis for an On-Site Disposal Cell, it does not mean my opinions should be considered irrational. It angers and upsets me that he seems to insinuate that our communities have set goals in which to build an On-Site Disposal Cell in our community. This assumption would be absolutely absurd. It is quite obvious to any rationale human being, that no one would ever set goals to have a seventy acre, six story high, dirt covered, pile of contaminated waste to be built in their own community. Especially since they were also being given the option of complete removal and clean up. To my knowledge no one living near the site in Ross Or Morgan Twp. have ever suggested anything as preposterous as this. How could anyone assume this is our intention. I attend nearly every Morgan Twp. trustee meeting and many of Ross's and know they have both publicly opposed any disposal-cell containing Hazardous waste be built in their communities. I thought I had made myself perfectly clear at the last Task Force meeting on Feb. 18, 1995, as did several other concerned citizens from our communities, that we were overwhelmingly opposed to the proposed disposal-cell. I believe we were also given the option of complete removal and clean up.

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If this option is no longer available please inform us publicly. I would hope that DOE. would not choose to ignore our request and just carry on business as usual. Some obviously feel they have the right to do this. But until they are confronted with these problems themselves they will never understand our reasoning.

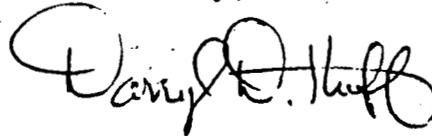
I believe the possibility of Mr.Willeke ever being able to relate to the fears and concerns of the real victims in this tragedy, are doubtful. Some of us find the opinion of an environmental college professor, such as Mr.Willeke to be very disturbing. The possibilities of derailment and spillage of hazardous material were of grave concern to Mr. Willeke when it was first proposed that trains loaded with hazardous waste were planning to travel through his community. His response was this could be very dangerous to the people in it's path. But if I were to claim that this same hazardous material being buried over a sole source aquifer might propose a threat to us : to quote Mr.Willeke : That argument won't cut it! According to him the cost outways the risk. It coincidently guarantees his community won't be threatened by so many train shipments also.

He says his rationale for on-site disposal is not an easy one to explain and I can understand why. Because this memorandum is not really rational at all. It is just a collection of biased opinions developed to win favorable approval on this matter.

The only theory that is guaranteed is that the cell will eventually fail. No one knows exactly when it will happen. But communities like mine are the ones that are being forced to unwillingly accept the risk and pray that the cell contains the waste from the aquifer and our families. The only guaranteed safe option for us is complete removal, but it seems the dollar restraints are far more important than protecting our drinking water and our families.

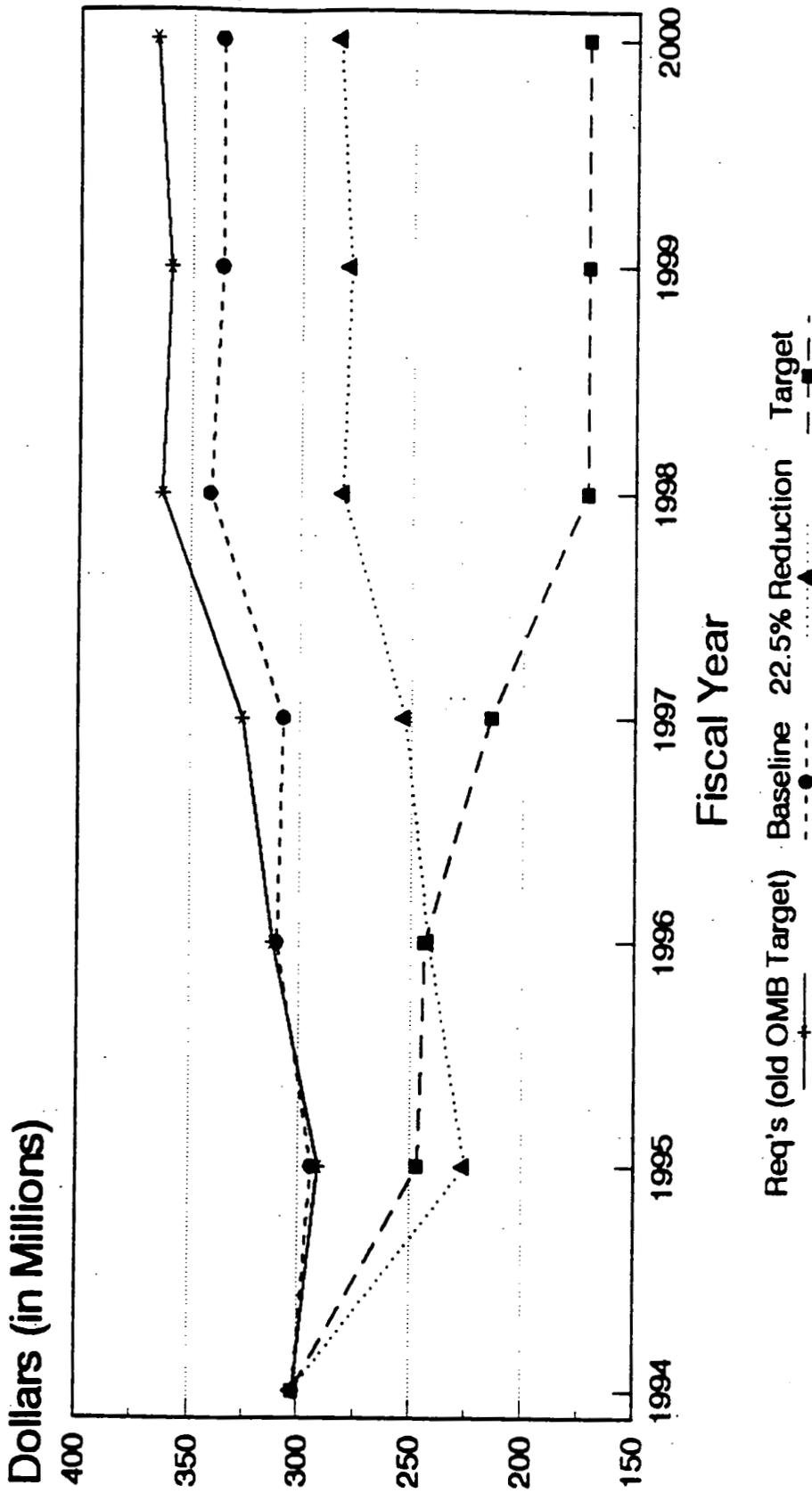
Our trust and faith in the government and their assoc. have been destroyed over the past forty years of abuse, lies, and coverups. If they ever expect us to trust them again they have to prove to us they mean what they say. We only ask that our questions and opinions be listened to and honestly considered Give us honest answers, not forced ultimatums!

Truthfully,



Fernald Area Office

Budget Cases FY 1994 through FY 2000



Fiscal Years	1994	1995	1996	1997	1998	1999	2000
Req's (old OMB Targets) <i>TRAIN/REK</i>	302.4 A	291.2	312.7	326.5	363.0	359.4	365.8
Approved Baseline 2/94	302.4 A	294.3	310.5	307.8	341.7	336.6	336.6
22.5% Reduction for Productivity (from old OMB Target)	302.4 A	225.6	242.3	253.0	281.3	278.5	283.4
Targets (2/8/95)	302.4 A	244,853 A	243.7	214.5	171.5	171.5	171.5

Date: 2/9/95
filename: jactbudg

A = Actual

OHIO FIELD OFFICE
 FY 1996 BUDGET
 (Dollars in Thousands)

	FERNALD	MOUND-EM	WEST VALLEY	OH*	TOTAL
FY 1996 BUDGET	309,540	137,476	129,700	3,878	580,594
OMB REQUEST					
ADJUSTMENTS:					
Prod. Savings	(29,850)	(7,550)	0		(37,400)
Uncosted Red.	(12,540)	(5,289)	0		(17,829)
M&O Savings	(15,200)	(6,364)	(1,985)		(23,549)
OMB Passback	(2,430)	(1,144)	(435)	19	(3,990)
Uncosted Rest.	12,540	2,585	0		15,125
Productivity	0	(2,495)	0		(2,495)
Pro Rata Adj.	(2,730)	(1,281)	(1,337)		(5,348)
Prog. Adj.	(3,000)	(5,554)	(3,843)	20,254	7,857
Uncosted Hold	(12,540)	(3,099)	0	(5,180)1/	(20,819)

FY 1996 ADJUSTED BA	243,790	107,285	122,100	18,971	492,146
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1/ Part of the \$5674K uncosted hold identified by Waste Management which is supposed to be released for use as Program Direction funding, per discussion with Barry Gaffney on 1/11/95.

FY 1996 FEMP FUNDING

FEMP Environmental Restoration (EM-40)	243,790,000
Day Lawsuit	< 10,000,000 >
FERMCO Fee	< 20,000,000 >
DOE-FN	< <u>15,000,000</u> >
	198,790,000

PRIORITIES:

- Operable Unit 4 Pilot Plant
- Thorium Overpacking/Disposition
- Waste Disposition
- FFCA Requirements
- Safe Shutdown Activities
- Safety and Health Initiatives
- Disposal Cell Planning
- Consent Agreement/Consent Decree Requirements

CHALLENGES:

- Continued Reduction in Overhead/Indirect Dollars
- Reduction in Landlord Requirements
- Privatization
- Deleting Unnecessary Requirements
- Replanning Work for FY 1997 and Beyond (RD/RA Schedules)

Fernald Environmental Management Project Funding (EW-20) Profile

	FY-94 (ACTUAL)	FY-95 (PLANNED)	FY-96 (PLANNED)	FY-97 (PROJECTED)	FY-98
8B1 - PROGRAM MGMT	65,667	53,489 <19%>	48,129 <10%>	40,281 <16%>	
16C3 - WASTE MGMT	24,654	26,300	20,000	15,000	
46B2 - OU 1	8,317	7,794	13,361	5,494	
47B2 - OU 2	6,383	7,687	15,300	19,291	
48B2 - OU 3	28,021	36,382	15,600	9,786	
49B2 - OU 4	11,043	17,524	17,300	33,139	
50B2 - OU 5	19,208	16,214	13,000	10,790	
68D1 - LANDLORD					
- ES&H	20,089	18,908	17,477	16,000	
- Site Services	50,078	49,702	38,623 <22%>	30,719 <20%>	
Total 68D1	70,167	68,610	56,100	46,719	
TOTALS (FERMCO)	233,460	234,000	198,790 <15%>	180,500 <9%>	136,559 <24%>
FEMP TOTAL (Includes DOE/FN Budget, Fee, Lawsuit Settlement)	302,400	244,853	243,790	214,500	171,559

FISCAL YEAR	1994	1995	1996	1997	1998-2000
CATEGORY	\$	\$	\$	\$	\$
	FY 94 % OF TOTAL	FY 95 % OF TOTAL	FY 96 % OF TOTAL	FY 97 % OF TOTAL	
CLEANUP	97,686	111,901	94,561	93,500	52%
ES & H	20,089	18,908	17,477	16,000	9%
SITE OPERATIONS	50,078	47,702	38,623	30,719	17%
PROJECT MANAGEMENT	65,667	53,489	48,129	40,281	22%
TOTAL	233,520	234,000	198,790	180,559	100%

FY 1998 = 136,559

INFORMAL NOTE

TO: SSAB Steering Committee

FROM: Don Beck, EM-5

SUBJECT: Guidance on Identifying Goals for Evaluation of the SSAB Initiative

DATE: February 27, 1995

1 The purpose of this memo is to explain the process for developing an evaluation design and to
 2 provide a framework to guide you in identifying the goals for the SSAB initiative that will
 3 form the basis for the proposed design.

4 The purpose of the evaluation is to determine whether one of EM's key public involvement
 5 initiatives--establishment of the SSABs--has met (or will, in the future, meet) the goals that
 6 EM and the other stakeholders have for this initiative. Since the purpose is to evaluate the
 7 initiative itself, the evaluation will necessarily examine the roles that all the stakeholders play
 8 in contributing to its success--EM, the regulatory agencies, the SSABs, and the public.

9 During the workshop, not much time was spent in discussing the purpose of the evaluation.
 10 Instead, we focused on identifying goals and possible performance measures. The
 11 brainstorming exercise generated many ideas about goals and associated performance measures
 12 that were recorded on flipcharts. The results of this brainstorming were faxed to all Steering
 13 Committee members last week. In order to proceed with the identification of ideas for goals
 14 and measures, we did not take the next steps of consolidating, or obtaining agreement on the
 15 goals and measures, or of discussing how well the proposed measures would indicate
 16 achievement of or progress toward the goals. Consequently, although the session was a very
 17 useful exercise and provided a point of departure for thinking more clearly about the purpose
 18 of the evaluation, goals, and measures, there was agreement that more work needed to be
 19 done.

20 The next steps in developing the evaluation design are to (1) reach closure on the purpose of
 21 the evaluation and the goals for the SSAB initiative; (2) develop associated performance
 22 measures; (3) prepare a preliminary evaluation design; and (4) validate the design prior to the
 23 initiation of the evaluation.

24 **Closure on Purpose and Goals**

25 Reaching closure on purpose and goals, in turn, involves several steps. To support this effort,
 26 I have asked the Pacific Northwest Laboratories' (PNL) team to take the flipchart information
 27 from the workshop and to expand on the information in preparing a conceptual framework

1 that includes (1) a statement of the purpose of the evaluation and a strawman list of goals; (2)
2 a strawman model of the actions that each of the participants needs to take in order for these
3 goals to be achieved; and (3) examples of contextual factors that will affect SSABs' ability to
4 achieve the goals.

5 The proposed conceptual framework is attached. The three components are:

- 6 1. Purpose of the evaluation and goals for the SSAB initiative: EM realizes that the
7 overall objectives of the SSAB initiative are to increase the quality of the decision-
8 making process, leading to better decisions, better use of EM funds; quicker, better
9 cleanup; and increased trust and confidence in EM and its decisions. From these
10 overarching goals, we have drawn up a strawman set of core goals. Core goals are
11 those common across all sites that will form the basis for evaluating the SSAB
12 initiative. Also included (shown below the dotted line) is one goal that was suggested
13 as a site-specific goal.
- 14 2. Actions or steps that are needed to achieve those goals: These represent the
15 expectations and also the responsibilities of the various parties concerning the way that
16 inputs and processes lead to desired outcomes. The matrix currently includes actions
17 for EM (HQ and Field Office) and SSABs; actions for State and EPA regulators
18 should also be added.
- 19 3. Examples of contextual factors that are likely to affect achievement of the goals:
20 These are factors that the various parties may not control, but that affect the difficulty
21 or ease of achieving the goals and therefore need to be taken into account in an
22 evaluation. Examples included in the list are the complexity and nature of the site
23 cleanup and waste management problem or the unity/divisiveness of the community.

24 I propose that Steering Committee members and the technical team take the following actions:

25 · PNL representatives will call each of the Federal coordinators within the next week to
26 discuss the purpose of the evaluation and the rationale for the attached framework.

27 · Federal coordinators and SSAB evaluation representatives will discuss the components
28 of the framework in a conference call with EM-5 on Monday March 6 at 4:00 p.m.
29 The conference call number is (202) 586-3324.

30 · Following discussion (and any agreed upon changes in the framework) in the March 6
31 conference call, we request that each SSAB provide written input on each of the three
32 framework components (evaluation purpose and goals; actions needed to achieve those
33 goals; and contextual factors).

34 · Federal coordinators and SSAB representatives will work with their SSABs to provide
35 written input to EM-5 on the three components of the framework by March 31. PNL

1 staff will be available to help in this process as requested. If needed, we can convene
2 an additional conference call during this period.

3 • The technical team (PNL and expert consultants) will integrate the input for DOE
4 review and subsequently provide a revised framework to the Steering Committee by
5 April 18.

6 • The Steering Committee will provide comments to EM-5 on the revised framework by
7 May 1.

8 • The technical team will incorporate comments and provide a consolidated draft
9 framework by May 30.

10 In conducting the process of identifying goals, it may be useful for SSABs to preface their
11 statements with "The purpose behind undertaking the SSAB initiative was to...." It would be
12 helpful if you would provide input on the preliminary list provided here and also add others
13 that you think should be goals for the SSAB initiative. If there are intermediate or supporting
14 goals that also need to be achieved in order to accomplish these core goals, consider whether
15 they are better stated as an action requirement, a contextual factor, or a goal.

16 **Developing Performance Measures**

17 Following completion of the consolidated draft of SSAB goals, the technical team will
18 develop a set of draft performance measures for distribution to Steering Committee members
19 by June 30 for their input. Steering Committee members' comments would be due two weeks
20 after the draft is received.

21 **Draft Evaluation Design**

22 The technical team will incorporate Steering Committee members' input in preparing a draft
23 evaluation design by August 15.

24 **Validated Evaluation Design**

25 During the three-month period from August 15 to November 15, participants in the SSAB
26 initiative will have an opportunity to begin compiling necessary documentation for the
27 evaluation that will begin in Fiscal Year 1996. EM-5 and/or PNL staff will visit each site
28 during this three-month time period to discuss with SSABs any problems or issues regarding
29 documentation that could affect the feasibility of implementing the evaluation design. Based
30 on these discussions, the technical team will make any necessary revisions to the design.

CONCEPTUAL FRAMEWORK¹

Purpose of the Evaluation and List of Goals

Purpose:

The purpose of the evaluation is to determine whether one of EM's key public involvement initiatives--establishment of the SSABs--has met (or will, in the future, meet) the goals that EM and other stakeholders have for this initiative. The purpose is to evaluate the initiative itself, not the effectiveness of individual SSABs.

Goals:

1. Provide informed advice on important policy issues (e.g., prioritization of cleanup decisions, budget priorities, future site uses, FFCA, integrated risk management initiative)
2. Provide a forum for expression of diverse values and for debate about priorities and site issues
3. Enhance public involvement in the decision-making process:
4. Reach consensus² among stakeholders on issues related to environmental restoration and waste management
5. Contribute to understanding about the basis for decisions
6. Facilitate inter-site cooperation in achieving cleanup/waste management goals
7. Achieve a constructive working relationship among site stakeholders (EM, EPA and State regulators and community)
8. Contribute to public trust and confidence (community, national stakeholders, Congress, regulators) in EM and its decision/actions related to environmental restoration and waste management

¹ Please refer to guidance memo, dated February 27, for explanation of goals, actions, and contextual factors

²There are different levels of consensus

9. Demonstrate EM's open decision-making process
- provide opportunities for involvement
 - facilitate accessibility
 - facilitate integration of stakeholder concerns, and
 - provide an independent source of advice

-
10. Play a watchdog/oversight role

CONCEPTUAL FRAMEWORK

Actions Needed to Achieve Goals

Actions EM-HQ needs to do:	Actions EM-Field Offices need to do:	Actions SSABS need to do:
<ol style="list-style-type: none"> 1. Charter board with appropriate: <ul style="list-style-type: none"> • Composition • Independence • Resources • Access 2. Clarify goals and expectations for the SSABs 3. Ensure the SSABs are provided relevant, timely information 4. Ensure boards have needed interaction with EM and contractor decisionmakers and staff 5. Ensure boards have adequate resources 	<ol style="list-style-type: none"> 1. Manage and support the SSAB initiative 2. Define and clearly communicate DOE's decisionmaking process to the Board 3. Provide timely access to information pertinent to environmental management decision making 4. Inform SSAB members of Departmental processes, programs, projects and activities pursuant to the Board's mission and purpose 5. Provide high-level managerial interface/attendance; designate a senior EM official to attend SSAB meetings and participate in discussions 	<ol style="list-style-type: none"> 1. Reflect diversity of community viewpoints 2. Develop appropriate operating procedures (effectiveness and independence) 3. Ensure that members become knowledgeable about: <ul style="list-style-type: none"> • Major issues • Community views • Decisionmaking process • PI process 4. Identify major issues; define the problems of focus (and establish an agenda of action) 5. Pressure EM to clarify, make visible and rational the decisionmaking process

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CONCEPTUAL FRAMEWORK

Actions Needed to Achieve Goals

Actions EM-HQ needs to do:	Actions EM-Field Offices need to do:	Actions SSABs need to do:
<p>6. Ensure appropriate relationship with other agencies (e.g., EPA, State regulatory agencies) is established</p> <p>7. Provide guidance and oversight of SSAB/Field Office interface</p> <p>8. Provide guidance to Field Office and SSABs on development of performance agreements</p>	<p>6. Review Board recommendations within a pre-determined amount of time. Explain the rationale for the Department's decisions and how and when accepted recommendations will be implemented</p> <p>7. Designate an EM employee and one alternate to serve as the point of contract for providing information to the Board and assisting the Board in administering its operations</p> <p>8. Establish protocols for requesting and receiving advice and/or recommendations</p> <p>9. Provide suggestions to the SSAB regarding activities at the site and major policy issues where the Board's input would be useful</p> <p>10. Ensure compliance with FACA in conducting meetings, keeping records, and making such records available to interested members of the public</p>	<p>6. Bring in outside scientific information/viewpoints</p> <p>7. Conduct debates/discussions that reflect diverse viewpoints</p> <p>8. Make every attempt to reach consensus recommendations</p> <p>9. Inform EM/Agencies and the public of the actions and results of the board</p> <p>10. Develop mutual performance agreement with EM Field Office</p> <p>11. Establish trust and confidence in the board</p> <p>12. Manifest democratic practices</p>

CONCEPTUAL FRAMEWORK

Actions Needed to Achieve Goals

Actions EM-HQ needs to do:	Actions EM-Field Offices need to do:	Actions SSABs need to do:
	<ol style="list-style-type: none">11. Encourage the Board to make every attempt to reach consensus12. Help establish trust and confidence in the SSAB13. Develop mutual performance agreements with the SSABs	

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University of Cincinnati



Center for Environmental
Communication Studies
University of Cincinnati
PO Box 210184
Cincinnati OH 45221-0184

620 Teachers College
Phone (513) 556-4440
Fax (513) 556-0899

February 17, 1995

TO: Members of Fernald Citizens Task Force
FROM: Steve Depoe
Center for Environmental Communication Studies
University of Cincinnati
RE: Update on CERE Public Concerns Inventory Project

The Center for Environmental Communication Studies at the University of Cincinnati is a partner in the Consortium for Environmental Risk Evaluation (CERE). CERE is a national team of researchers which has been contracted by the Department of Energy to conduct a review of environmental and health risks and public concerns pertaining to six major DOE weapons production sites, including Fernald. The Public Concerns Inventory component of the study is attempting to identify and summarize the range of public attitudes and viewpoints regarding each site. U. C. is playing a significant role in collecting data for the Public Concerns Inventory, and this memo is intended to update you on the progress of that data collection.

Document collection. We have collected and reviewed over 2600 documents about Fernald produced over a five-year period (1990-94), and have identified over 1300 of those documents as containing public comments or concerns. Those documents have been copied and are now being analyzed by the CERE team. We are reviewing the documents one year at a time so as to capture the evolving nature of public debate on risk issues at Fernald.

Focus groups. We have conducted fifteen focus groups, asking various stakeholders and community members to discuss their current attitudes and viewpoints about activities and risk issues at Fernald. Tapes of those focus groups are now being transcribed and prepared for analysis. During the process of identifying public concerns in the focus groups, participant anonymity will be preserved.

CERE report. CERE is required produce a summary of study findings to DOE, who is in turn required to report to Congress by the end of June. The Public Concerns component of the CERE study will generate a national report document, which summarizes findings on public concerns from all six sites, and six installation-specific documents which chronicle in more detail the public concerns expressed at each site. We want stakeholder input and comment on both the national and the Fernald site reports. We will notify members of the Task Force and other key stakeholders as soon as draft documents are ready for review. Thank you for your concern.



Agency for Toxic Substances
and Disease Registry

Atlanta GA 30333

March 1, 1995

Mr. John Applegate, Esq.
Fernald Citizens Task Force
University of Cincinnati
College of Law
P.O. Box 210040
Cincinnati, OH 45221-0040

Dear Mr. Applegate:

The Agency for Toxic Substances and Disease Registry (ATSDR) is committed to keeping the Fernald community informed of our activities at the U.S. Department of Energy's (DOE) Fernald Environmental Management Project (FEMP), at Fernald, Ohio. This letter is to update you regarding ATSDR's recent activities at the FEMP.

Local citizens requested that ATSDR determine if milk produced from dairy farms near the FEMP is safe to drink. As a result, ATSDR sampled and analyzed milk from two dairy farms near the FEMP. Enclosed are three copies of ATSDR's health consultation on this subject.

The public is invited to comment on the consultation. There will be a time period for written comments, which will run until April 28, 1995. Please send any comments to the following address:

Chief, Program Evaluation, Records,
and Information Services Branch
ATTN: DOE/Fernald Environmental Management Project
Agency for Toxic Substances and Disease Registry
1600 Clifton Road, NE (E56)
Atlanta, GA 30333

In addition, ATSDR is planning a public information sharing session where our staff will be available to discuss this health consultation with you.

If there are any questions, please direct them to L. F. (French) Bell, P.E. or Bill Taylor, Ph.D., at (404) 639-6068.

Sincerely yours,

Max M. Howie, Jr.
Max M. Howie, Jr.
Chief

Program Evaluation, Records,
and Information Services Branch
Division of Health Assessment
and Consultation

Enclosure

Health Consultation

Public Comment Draft

MILK PRODUCED NEAR THE
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, HAMILTON COUNTY, OHIO

MARCH 1995

Comment Period Ends: April 28, 1995

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Office of Regional Operations
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material. In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members.

The Public Comment Period is an opportunity for the general public to comment on Agency findings or proposed activities for this written consultation. The purposes of the comment period are to 1) provide the public, particularly the community associated with a site, the opportunity to comment on the public health findings, 2) evaluate whether the community health concerns have been adequately addressed, and 3) provide ATSDR with additional information.

The conclusions and recommendations presented in this health consultation are the result of site specific analyses and are not to be cited or quoted for other evaluations or health consultations.

HEALTH CONSULTATION

MILK PRODUCED NEAR THE

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

FERNALD, HAMILTON COUNTY, OHIO

CERCLIS NO. OH6890008976

Prepared by

Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Federal Facilities Assessment Branch
Energy Section B

STATEMENT OF ISSUES AND SUMMARY

The Agency for Toxic Substances and Disease Registry (ATSDR) initiated this health consultation which addresses whether milk produced from dairy farms near the Fernald Environmental Management Project (FEMP) at Fernald, Ohio, is safe to drink, in response to concerns expressed by members of the community surrounding the site.

ATSDR has been actively engaged since 1993 in a program to collect environmental samples in and around Fernald, Ohio. The purpose of this program is to collect data to address specific concerns expressed to ATSDR by people living near the FEMP about the safety of their environment. We have enlisted the assistance of the U.S. Environmental Protection Agency's (EPA) National Air and Radiation Environmental Laboratory (NAREL), Montgomery, Alabama, to help us collect and analyze environmental samples.

This health consultation presents the results of the milk samples we collected in June and August 1994.

Based on the information we collected, ATSDR believes the milk near Fernald is safe to drink.

BACKGROUND AND RESULTS

In June 1994, we collected two milk samples from a dairy farm on the southeast portion of the Fernald property and two additional milk samples from another dairy farm approximately six miles northwest of the site. We took the second set of milk samples to compare to the first. We chose the location of the second farm because it is in the direction from the site toward which the wind blows the least and, thus, is least likely to be affected by airborne releases of radionuclides from Fernald. We collected the same number of milk samples from the same two farms in August 1994.

The NAREL laboratory analyzed the milk samples for three uranium isotopes as well as for gamma radioactivity. The quantities of the radioisotopes found in the milk are provided in Tables 1 and 2 below. The results in the tables are presented in picocuries per liter (pCi/L)¹ and millibecquerels per liter (mBq/L) of milk, which are units of radioactivity per volume, and represent the concentrations, or quantities, of the radionuclides in the milk.

¹ One picocurie (1 pCi) equals 37 millibecquerel (37 mBq). The becquerel is the radioactivity unit in the SI (International System of Units) system.

Table 1. JUNE 1994 FERNALD MILK SAMPLES
 In picocuries per liter (pCi/L) and millibecquerels per liter (mBq/L)^a.

LOCATION NAREL SAMPLE #	ON SITE		6 MILES NW OF FERNALD	
	1	2	3	4
URANIUM ANALYSIS RESULTS				
U-234	0.049 (1.8)	0.310 (11)	0.330 (12)	0.110 (4.1)
U-235	0.006 (0.2)	ND ^b (ND)	0.006 (0.2)	0.049 (1.8)
U-238	0.026 (0.96)	0.093 (3.4)	0.110 (4.1)	0.049 (1.8)
GAMMA SPECTROSCOPY RESULTS				
K-40	1,270 (46,990)	1,300 (48,100)	1,330 (49,210)	1,380 (51,060)
Pb-212	ND (ND)	ND (ND)	ND (ND)	ND (ND)

a First numbers given are picocuries per liter (pCi/L); millibecquerels per liter (mBq/L) are given in parentheses. 1 pCi = 37 mBq.

b ND = Radioisotope Not Detected in the sample.

Table 2. AUGUST 1994 FERNALD MILK SAMPLES
 In picocuries per liter (pCi/L) and millibecquerels per liter (mBq/L)^a.

LOCATION	ON SITE		6 MILES NW OF FERNALD	
	5	6	7	8
URANIUM ANALYSIS RESULTS				
U-234	0.300 (11.1)	0.510 (18.9)	0.280 (10.4)	0.360 (13.3)
U-235	0.055 (2.0)	0.120 (4.44)	0.084 (3.1)	0.160 (5.92)
U-238	0.170 (6.29)	0.094 (3.5)	0.250 (9.25)	0.120 (4.44)
GAMMA SPECTROSCOPY RESULTS				
K-40	1,370 (50,690)	1,480 (54,760)	1,300 (48,100)	1,370 (50,690)
Pb-212	4.7 (170)	ND ^b (ND)	ND ^b (ND)	ND ^b (ND)

- a First numbers given are picocuries per liter (pCi/L); millibecquerels per liter (mBq/L) are given in parentheses. 1 pCi = 37 mBq.
- b ND = Radioisotope Not Detected in the sample.

DISCUSSION

All of the radioisotopes we detected in these milk samples are natural components of the earth's crust and small quantities of these radioisotopes are present in many foods [1,2,3].

We examined recent nationwide milk survey data for potassium-40 (K-40) and lead-212 (Pb-212). In 1994, NAREL analyzed five hundred and seventy-one milk samples through its Environmental Radiation Ambient Monitoring System (ERAMS) program [2]. These nationwide samples were analyzed by gamma spectrometry, which detects K-40, Pb-212, and other gamma emitting radionuclides. (Gamma spectrometry is not an effective method for quantifying uranium in milk.) The K-40 and Pb-212 results from the milk samples collected nationwide are presented in the following table.

**Table 3. SUMMARY OF 1994 NATIONWIDE ERAMS^{a,b} MILK SAMPLING
In picocuries per liter (pCi/L) and millibecquerels per liter (mBq/L)^c.**

571 Samples Analyzed	Number of Samples with Detection	Range of Results	Average Concentration \pm SD ^d
K-40	571	720 - 1,590 (26,640 - 58,830)	1,350 \pm 64 (49,950 \pm 2,400)
Pb-212	35	2.4 - 10.2 (89 - 377)	5.1 \pm 2.0 (190 \pm 74)

- a ERAMS is the Environmental Radiation Ambient Monitoring System, conducted by NAREL.
- b This data, reference 2.
- c First numbers given are picocuries per liter (pCi/L); millibecquerels per liter (mBq/L) are given in parentheses. 1 pCi = 37 mBq.
- d SD is one Standard Deviation of the Average Concentration.

The milk samples we collected at Fernald contain the same amount of K-40 and Pb-212 as in the nationwide milk samples. This indicates that the K-40 and Pb-212 detected in our samples are from naturally occurring sources.

We do not have recent milk survey data for uranium isotopes. NAREL analyzed uranium in milk as part of the ERAMS program prior to 1986. However, these analyses were discontinued because

uranium concentrations in milk samples collected nationwide never exceeded levels of concern.

We calculated a radiation dose to a person who would drink the milk for 70 years beginning at infancy. The radiation dose from all the radionuclides we measured in the milk is 214 millirems (214 mrem; also, 2.14 millisieverts or 2.14 mSv)² over 70 years; or, approximately 3 mrem per year (0.03 mSv per year). A person normally receives approximately 300 mrem (3 mSv) in a single year from naturally occurring radiation sources [4].

The largest component (greater than 99 percent) of the total radiation dose (214 mrem, or 2.14 mSv) in our milk samples is due to the radioactive potassium (K-40). The uranium isotopes (U-234, U-235, U-238) contribute approximately 2 mrem (0.02 mSv) for the entire 70 years and the lead-212 contributes much less than 1 mrem (0.01 mSv).

Potassium is an essential nutrient and is found in all living things. Radioactive potassium (K-40) occurs in about 0.01 percent abundance wherever there is potassium [5]. For example, a banana contains about 396 mg of potassium; about 0.04 mg (0.01%) is K-40 [6]. A 70 kg man contains about 140 g of potassium, mostly in muscle; about 14 mg would be K-40 [3]. This corresponds to about 120,000 pCi (4.4 million mBq) of radioactivity (from just potassium) and a radiation dose to soft tissue of about 18 mrem per year [3,7]. K-40 is the predominate source of naturally occurring radiation within our bodies and the predominate source of gamma radiation from one person to another.

We examined the levels of uranium in the milk samples from the two farms where we collected them. We note that the uranium concentration in the soil at the farm in the southeast corner of the Fernald property is approximately 8 milligrams per kilogram of soil (8 mg/kg); the concentration of uranium in soil six miles northwest of Fernald is approximately 2.5 mg/kg [8]. Although cows which graze on these farms likely ingest some soil, we do not see any more uranium in the milk from the farm on the Fernald property than in the milk from the more distant farm.

A wide variety of human and animal studies have shown that very little uranium is able to pass through the stomach and intestinal walls and into the cow's bloodstream [9]. Also; the uranium present in the soils is in a chemical form³ that is particularly unlikely to cross the intestinal walls and into the cow's blood. Most of the uranium contamination the cows ingest passes through

² One rem (1 rem) equals 0.01 sievert (0.01 Sv). The sievert is the dose unit in the SI (International System of Units) system.

³ Tetravalent uranium oxides and uranium fluorides [10].

the cows and out in their feces. Therefore the uranium in the soils does not get into the milk.

Possible sources of the trace amounts of uranium that we detected in the cows milk include feed, water, air, soil and fertilizer.

CONCLUSION

The radiation dose a person would receive from drinking the milk we sampled is the same dose a person would receive from drinking any milk in the United States.

Based on the data from the milk samples we collected, ATSDR believes the milk is safe to drink.

RECOMMENDATIONS

No recommendations.

REFERENCES

1. Toxicological Profile for Uranium, Agency for Toxic Substances and Disease Registry, December 1990.
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